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EXAMINER
MYINT, DENNIS Y

ART UNIT	PAPER NUMBER
2162	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,988	EVERETT, RON	
	Examiner	Art Unit	
	Dennis Myint	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,40-62 and 81-96* is/are pending in the application.

4a) Of the above claim(s) *63-81* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-24,27,28,31-34,36,40,42,44,47-62,82-90 and 92-96* is/are rejected.

7)☒ Claim(s) *25,26,29,30,35,37,41,43,45,46 and 91* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Applicant's Amendment, filed on 04 May 2006.

2. Claims 1-37, 40-62, and 81-96 are pending in this application. Claims 1, 52, 82, and 85 are independent claims. In the Amendment filed on 04 May 2006, claims 24-30 are amended. Claims 38-39 are cancelled. Claims 63-81 were withdrawn from consideration.

Response to Arguments

3. Applicant's arguments with respect to claim82-84 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the rejection of claim 1, the applicant argues as follows. *None of the elements of Claim 1 are disclosed by White* (Applicant's argument, Page-27). *White teaches the direct opposite of this limitation, namely, that the relationships between data instances (or data objects as they are referred in White) are kept separately form the data instance themselves* (Applicant's argument, Page-27). Applicant made reference to Column 6 Lines 9-22 of White reference as *Preferably, the bi-directional modifier text for*

a given relation comprise arbitrary text strings defined by user input. Moreover, the data structure (i.e. data records) representing the given relation is preferably separate from (and indirectly coupled to) the subject objects(s) and direct object(s) and so on (Pages 27-28).

The argument above is directed only to one specific embodiment of several preferable embodiments which the White patent presents. White patent is not limited to only one embodiment, which the Applicant refers in the above argument. To the contrary of the Applicant's argument, White teaches features for encapsulating relationships between data instances (data objects as referred by White). Particularly note Column 6 Lines 66 through Column 7 Lines 11 of White reference, which states as follows:

> FIGS. 2 and 3 illustrates an exemplary embodiment of logical data structures representing the inventive object data mode of the present invention, including a plurality of objects (Object A, Object B, Object C and Object D as shown) each having a plurality of attributes (as data members) for storing useful information that describes characteristics of the corresponding object. ***The attributes of a given object may be used to encapsulate data*** and/or link to software functionality and/or processes pertinent to the given object. *As shown in FIG 3, a Type Table Entry for* ***a given object type includes one or more objects identifiers (or pointers or keys) that identifies the objects that belong to the given object type.*** (White Column 6 Lines 66 through Column 7 Lines 11)

The above reference clearly indicates that data objects in White's method/system could encapsulate more data objects inside and/or pointers to separately encapsulated data objects (data instances), which anticipates the limitation (c) of claim 1 of the application. Elaborating this point, White reference continues to recite that:

> The Relation Table Entry, for a given object relations, includes: I) a relations object identifier (***or key, or pointer***) that identifies a Relations Object Table Entry; and ii) a modifier identifier (or key, or pointer) that identifies a Modifier Table Entry. The Relation Object Table Entry identified by the relation object identifier of the Relation Table Entry for the given object relations, includes: i) one or more subject identifiers (or keys, or pointers) that identify the one or more subject objects of the given object relations; and ii) one or more direct object identifiers (or keys or pointers) that identify the one more direct objects of the given relation (White, Column 7 Lines 18-38).

The above reference clearly teaches encapsulated references/relationships to separately encapsulated data instances. Please also see Column 6 Lines 23-43 of White reference for object relations and type relations.

Applicant argues that *No tables are needed in which data objects, relationships, predicates, relation types, or data types are stored* (Applicant's argument, Page 28). *White, however, represents a table centric architecture wherein both the data objects as well as relations and the relation types are stored in simple relational database tables* (Applicant's argument, Page 28). However, the specification of the application recites data structures, which are conceptually similar to tables. For instance, Paragraph 0091 of the specification of the application recites that *Note that the same association, **expressed as a tuple in the relational model**, is only symmetrical if the 'Price' column of the Stock has a secondary index.* Note that the method and system of White recites object-oriented database model and the claimed database model/architecture of the application is a data instance centric mode/architecture, both of which are conceptually the same at fundamental levels, that is, objects encapsulates attributes, relationships, references, other objects and so on.

Application also argues that *In White application, some form of database structure is required to implement the system, while in the present application, no database structure is required* (Applicant's argument, Page 29). This argument is not valid. Encapsulation of objects, links (pointers), and relations in a database objects is one of the fundamental concepts of object-oriented database system. As such, database objects (database instances) are fundamental building blocks of object-oriented (i.e. instance centric as the Applicant calls) database systems. Both White and the instant application recite these fundamental building blocks, that is, database instances or database objects.

Referring to claim 2, Applicant argues that White reference does not teach *structural symmetry* (Applicant's argument, Page 29) because *White system requires a second text string that characterizes the semantics of the relationship of the direct object to the subject object of the given relation* (Applicants argument, Page 29). The feature of structural symmetry is evidenced in White as *Moreover, in the present invention the textual annotation stored by a given relation includes* ***bi-directional modifier text,*** *which includes: first text that characterizes the semantics of the relationship of the subject object(s) to direct object(s) of the given relation, and second text characterizes the semantics of the relationship of the direct object(s) to the subject object(s)* (White, Column 5 Lines48-63). Said feature of White's system clearly recited the feature of symmetrical relationship in database objects (database instances) in White's system. See also Column 7 Lines 18-38 of White specification for similar feature.

Referring to claim 2, Applicant' alleges that *these data structures not encapsulated with the data instances themselves* (Applicant's argument, Page 30) and *they are preferably stored separately and away from the related objects* (Applicant's argument, Page 30). This issue of encapsulation has been addressed in the response to the Applicant's argument regarding claim 1.

Referring to claim 7, the Applicant argues that *No mention is made in this passage or anywhere else in White regarding the type of association* (Applicant's argument, Page 30). To the contrary of this argument, White recites as follows: *As shown in FIG 3, a* ***Type Table Entry*** *for a given* ***object types*** *includes one or more object identifiers (or pointer, or keys) that identify the objects that belong to the given object type* (White, Column 7 Lines 8-11).

Referring to claim 89, the Applicant argues that *with respect to claim 85, the limitation of mutual encapsulated references is not met by White* (Applicant's argument, Page 31). Said issue has been addressed in the response to the Applicant's arguments concerning claim 1.

Referring to claim 92, the Applicant raises the same issue of encapsulation, which has been sufficiently addressed in the response to the Applicant's argument concerning claim 1.

Referring to claim 82 through 84, the Applicant's argument is accepted and, as such, a new ground of rejection of claims 82-84 is introduced.

Referring to claims 5, 6, 18, 19-24, 31-34, 36, 47-48, 50-52, 54-55, 58-60, 62, 88, 90, and 93, the Applicant argues that *White teaches away from the present application*

as previously discussed with respect to claim 1 (Applicant's argument, Page 33). This argument has been sufficiently addressed in the response to the Applicant's arguments concerning claim 1.

Referring claim 32, 40, 40, 44, 17, 49, 61, and 94-96, Applicant argues in the same vein. Therefore, Applicant is advised to refer to the response made to the Applicant's arguments concerning claim 1.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 7, 9-16, 53, 85-87, 89, 92 are rejected under 35 U.S.C. 102(e) as being anticipated by White et al. (hereinafter "White") (U.S. Patent Number 6609132).

As per claim 1, White is directed to a data management system in a computing environment (Column 5 Lines 3-25) and teaches the limitations:

a) "a data instance centric architecture" (Column 5 Line 31-32);

b) "where each data instance is encapsulated in a common fundamental data structure" (Column 6 Line 66 through Column 7 Line 11); and

c) "where said common fundamental data structure also encapsulates references to associated separately encapsulated data instances" (Column 6 Line 66 through Column 7 Line 11, Column 7 Line 18-38, and Column 6 Line 23-43).

As per claim 2, White teaches the limitation:

" wherein the said data-instance centric architecture and the said common fundamental data structure have structural symmetry" (Column 5 Line 48-63 and Column 7 Line 18-38).

As per claim 3, White teaches the limitation:

" wherein a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance" (Column 6 Line 22-43 and Column 7 Line 18-38).

As per claim 4, White teaches the limitation:

"wherein said data-instance centric architecture and the said fundamental data structure and the said encapsulated data instances and references have structural and relationship symmetry" (Column 5 Line 48-63 and Column 7 Line 18-38).

As per claim 7, White is directed to the limitation:

"wherein said encapsulated references are in at least one dimensions; and each of said at least one dimensions corresponds to a type of association" (Column 7 Line 5-11).

As per claim 9, White is directed to the limitation:

"wherein the common fundamental data structure is application independent and is generally the same for all of said data instances" (Column 7 Line 61 through Column 8 Line 3).

Claims 10-16 and 53 are rejected on the same basis as claim 9.

Claims 85-87 are rejected on the same basis as claim 1.

As per claim 89, White teaches the limitation:

"wherein said references to associated items are arranged in sets defining the type of association between said item and each of said other items referenced in said set" (Figure 3 and Column 7 Line 44-61 "Relation Type Table Entry").

As per claim 92, White teaches the limitation:

"wherein said items may act as containers for one more member items" (Column 6 Line 66 through Column 7 Line 11, Column 7 Line18-38, and Column 6 Line 23-43).

6. Claims 82-84 are rejected under 35 U.S.C. 102(e) as being anticipated by Abineri et al. (hereinafter "Abineri") (U.S. Patent Application Publication Number 2005/0044079).

As per claim 82, Abineri is directed to a method to convert a non-data instance centric database to a data instance centric database (Paragraph 0106) and teaches the limitations:

"creating data instances in said data instance centric database representing elements of said non-data-instance centric database schema and data elements of said non-data-instance centric database" (Paragraphs 0049-0068); and

"create associations amongst the said data instances in said data centric database representing the relationships between said data elements and said schema elements of the non-data-instance centric database" (Paragraphs 0061 and 0067).

As per claim 83, Abineri is directed to the method of claim 82 wherein said converting is through a software agent. The whole system of Abineri is a software agent.

As per claim 84, Abineri is directed to the limitation:

" wherein said non-data instance centric database includes a flat file" (Paragraph 0106).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 5, 6, 8, 18, 19-24, 31-34, 36, 47-48, 50-52, 54-55, 58-60, 62, 88, 90, and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Kroenke et al. (hereinafter "Kroenke")(U.S. Patent Number 5809297).

Referring to claim 5, White teaches the limitations:

" wherein a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance;"

"wherein each of said encapsulated references is a logical index which uniquely identifies each of said associated encapsulated data instances and also encodes the location ("pointers or keys") of each of said associated encapsulated data instances" (White et al., "pointers or keys", Column 7 Line 5-11).

White does not explicitly teach the limitation: "wherein said logical index is 'm' dimensional, and has 'n' bits per dimension".

Kroenke teaches the limitation:

"wherein said logical index is 'm' dimensional, and has 'n' bits per dimension" (Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17). Kroenke teaches an object data model for semantic relationships wherein such logical indexes (attributes) "m" dimensional (Kroenke et al., Figure 2 and Column 6 Line 26-65) and has "n" bits per dimension (Kroenke et al., "length", Column 14 Line 4-17).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the details for creating attributes for a semantic object as taught by Kroenke et al. with the system and method taught by White et al. as applied to claim 1 above so that the combined system would comprise logical indexes which are "m" dimensional and has "n" bits per dimension. One would have been motivated to do so in order to obtain "a system that allows a user to create a relational database schema in a way that does not require the user to be familiar with the underlying database technology or rules for defining a database", thereby enabling the user "to define the data to be stored in a way that mirrors the user's view of the data" (Kroenke et al., Column 2 Line 9-16).

Referring to claim 6, White teaches the limitation:

"wherein said data instance centric architecture and said fundamental data structure; and the said encapsulated data instances and references have structural, relationship, value and containment symmetry" (*Type Table Entry* in Column 7 Lines 8-10, Column 5 Lines 48 through Column 6 Line 21, and Column 7 Lines 18-38).

Referring to claim 8, the system and method of White in view of Kroenke teaches the limitation:

"wherein each of said at least one dimensions has a plurality of said encapsulated references" (White, Column 7 Lines 5-11, Column 7 Lines 45-52 and Kroenke, Column 6 Line 26-65).

Referring to claim 18, Kroenke teaches the limitation:

"wherein said encapsulated references of at least one of said encapsulated data instances are unique and said encapsulated references of at least two of said encapsulated data instances are generally identical" (Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17).

As per claim 19, White teaches the limitation:

"wherein said data instance centric architecture includes plurality of pre-existing encapsulated data instances, and said plurality of pre-existing encapsulated data instances have established associations, and at least one new encapsulated data instance is associated with at least one of said pre-existing encapsulated data instances" (Column 5 Line 3-32).

White in view of Kroenke teaches an object database model (White et al., Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (White et al., Column 5

Line 5-10). Being an object database model, said objects encapsulate semantic attributes (semantic relations between/among the objects) along with other attributes. Said objects can be created or destroyed repeatedly. Therefore, said objects (encapsulated data instances) can pre-exist and more such objects can be created at will, establishing relationships between/among those pre-existing and new objects.

As per Claim 20, white teaches the limitation:

"wherein said data instance centric architecture includes a plurality of pre-existing encapsulated data instances; said encapsulated data instances have established associations; and wherein any of said pre-existing encapsulated data instances can be removed disassociated from other pre-existing associated encapsulated data instances" (Column 5 Line 5-10). White teaches an object database model (Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (Column 5 Line 5-10). Being an object database model, said objects can be removed/dissociated from any other objects (pre-existing or otherwise).

Claim 21 is rejected on the same basis as claim 19. White teaches an object database model (Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (Column 5 Line 5-10). Being an object database model, attributes of the objects can be arbitrarily

changed. In other words, new associations between objects (pre-existing or otherwise) can be added.

Claim 22 is rejected on the same basis as claim 19. White teaches an object database model (Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (Column 5 Line 5-10). Being an object database model, attributes of the objects can be arbitrarily changed. In other words, associations between objects (pre-existing or otherwise) can be removed.

Referring to claim 23, White in view of Kroenke teaches the limitations:

a. "finding specific unknown encapsulated data instances from a selection criteria of known encapsulated data instances by accessing said known encapsulated data instances representing said selection criteria" (White Column 23 Lines 42-50 and Kroenke Column 12 Lines 15-44);

b. "accessing references encapsulated with said known encapsulated data instances representing said selection criteria" (White Column 23 Lines 42-50 and Kroenke Column 12 Lines 15-44);

c. "using Boolean operations to compare said accessed encapsulated references to find references to said specific unknown encapsulated data instances" (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44); and

d. "retrieving said specific unknown encapsulated data instances" (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44).

Referring to claim 24, White in view of Kroenke teaches the limitations:

a. "said encapsulated references are embodied as logical indexes in a plurality of dimensions" (White, *pointers or keys* in Column 7 Line 5-11) ;

b. "each of said dimensions corresponds to a type of association" (White Column 5 Line 3-25 and Column 6 Line 22-43); and

c. "said accessing further comprises accessing said encapsulated references from said dimensions specified in said selection criteria" (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44).

Referring to claim 31, White teaches the limitation:

"wherein said encapsulated data instances have attributes of a user interface" (Column 5 Line 30-32 and Column 10 Line 12-60).

Claim 32 is rejected on the same basis as claim 31.

Claim 33 and 34 are rejected on the same basis as claim 23.

Referring to claim 36, White in view of Kroenke teaches the limitations:

"a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with

a reference to said first encapsulated data instance" (White Column 6 Line 66 through Column 7 Line 11, Column 7 Line 18-38, and Column 6 Line 23-43);

"wherein each of said encapsulated references is a logical index which uniquely identifies each of said associated encapsulated data instances and also encodes the location of each of said associated encapsulated data instances" (White, *pointers or keys*, Column 7 Line 5-11); and

"wherein said logical index is `m` dimensional, and has `n` bits per dimension" (Kroenke, *length*, Column 14 Line 4-17);

"said encapsulated references of different said encapsulated data instances are used by comparing such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results" (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44).

Claim 47 is rejected on the same basis as claim 23.

Claim 48 is rejected on the same basis as claim 33.

Claim 50 is rejected on the same basis as claim 23.

Referring to claim 51, White in view of Kroenke teaches the limitations:

"said encapsulated references of at least one of said encapsulated data instances is unique and said encapsulated references of at least two of said encapsulated data instance are generally identical" (Kroenke, Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17); and

"searching said system wherein said encapsulated references of different said encapsulated data instances are used to derive desired results" (White Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

Claim 52 is rejected on the same basis as claim 5.

Claim 54 is rejected on the same basis as claim 23.

Claim 55 and 58, and 60 are rejected on the same basis as claim 33.

Claim 59 is rejected on the same basis as claim 23.

Claim 62 is rejected on the same basis as claim 18.

Claim 88 and 90 are rejected on the same basis claim 5.

Claim 93 is rejected on the same basis as claim 6.

9. Claim 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Kroenke et al. and further in view of Walker et al. (hereinafter "Walker") (U.S. Patent Application Publication Number 2003/0216169).

Referring to claim 27, White in view of Kroenke does not explicitly disclose the limitation:

"said Boolean operations further comprise: basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation".

Walker teaches the limitation:

"said Boolean operations further comprise: basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation" (Paragraphs 0045-0046).

At the time the invention was made, it would have obvious to a person of ordinary skill in the art to add the feature of combining Boolean operations with basic mathematical operations as taught by Walker to the system and method taught by White et al. in view of Kroenke et al. as applied to claim 23 so that, in the resultant method, Boolean operations would further comprise basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation. One would have been motivated to do so simply to reduce execution time.

Claim 28-30 is rejected on the same basis as claim 27.

10. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view Bielak et al. (hereinafter "Bielak") (U.S. Patent Number 5873049).

Referring to claim 40, White et al. as applied to claim 1 does not explicitly disclose the limitation:

"encapsulated data instances representing ASCII characters";

"said common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters;" and

"said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters".

Bielak teaches the limitations:

""encapsulated data instances representing ASCII characters";

"said common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters;" and

"said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters" (Column 12 Line 64 through Column 13 Line 12). Bielak et al. teaches a system and method for persistent databases, wherein ASCII characters are encapsulated in data objects (Column 12 Line 64 through Column 13 Line 12).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of encapsulating ASCII characters in data objects as taught by Bielak et al. with the system of White et al. as applied to claim 1 so that the combined system further comprise encapsulated data instances representing ASCII characters, wherein common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII

characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters. One would have been motivated to do so simply because object-oriented model could encapsulate any kind of data, including ASCII characters which are more human-readable than other data types.

11. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view Eversole et al. (hereinafter "Eversole")(U.S. Patent Application Publication Number 2003/0076978).

Referring to claim 42, White does not explicitly disclose the limitations:

"said encapsulated data instances representing Unicode Characters";

"said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters;" and

"said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contains encapsulated references to said data instances representing corresponding Unicode characters".

Eversole teaches the limitations:

"said encapsulated data instances representing Unicode Characters";

"said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters;" and

"said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contains encapsulated references to said data instances representing corresponding Unicode characters" (Paragraph 0043). Eversole et al. teaches a method for extensible file format, wherein Unicode characters are encapsulated in data objects (Eversole et al., Paragraph 0043).

At the time the invention was made, it would have been obvious to a person ordinary skill in the art to combine the feature of encapsulating Unicode characters in data objects as taught by Eversole et al. with the system of White et al. as applied to claim 1 so that the combined system further comprise encapsulated data instances representing Unicode characters, common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters, and said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contains encapsulated references to said data instances representing corresponding Unicode characters. One would have been motivated to do so object-oriented model could encapsulate any kind of data, including Unicode characters which are more human-readable than other data types.

12. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view Shwartz et al. (hereinafter "Shwartz") (U.S. Patent Number 5812840).

Referring to claim 44, White et al. as applied to claim 1 does not explicitly teach the limitations:

"said encapsulated data instances comprises data instances representing a token set of any data type;"

"common fundamental data structures containing said data instances representing a token set of any data type also contain encapsulated references to encapsulated data instances containing said corresponding token set of any data type;" and

"said common fundamental data structures containing said encapsulated data instances representing token set of any data type also contains encapsulated references to said encapsulated data instances representing corresponding token set of any data type" .

Shwartz teaches the limitations:

"said encapsulated data instances comprises data instances representing a token set of any data type;"

"common fundamental data structures containing said data instances representing a token set of any data type also contain encapsulated references to encapsulated data instances containing said corresponding token set of any data type;" and

"said common fundamental data structures containing said encapsulated data instances representing token set of any data type also contains encapsulated references to said encapsulated data instances representing corresponding token set of any data type" (Column 22 Lines 13-16) . Shwartz et al. teaches a method and system for database query, wherein a set of encapsulated variables are included in an object data structure ("a blackboard").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of encapsulating token set of any data type in data objects as taught by Shwartz et al. with the system of White et al. as applied to claim 1 so that the combined system further comprise encapsulated data instances representing a token set of any data type. One would have been motivated to do so simply because object-oriented model could encapsulate any kind of data.

13. Claim 17, 49, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Silberberg et al. (hereinafter "Silberberg") (U.S. Patent Number 6957214).

Referring to claim 17, White et al. does not explicitly teach the limitation:

"wherein at least one of said encapsulated references is a reference to an encapsulated data instance in another computing environment."

Silberberg teaches the limitation:

""wherein at least one of said encapsulated references is a reference to an encapsulated data instance in another computing environment" (Column 5 Line 48

through Column 6 Line 54). Silberberg et al. discloses architecture for distributed database information access wherein data instances are located in different computing environments (Column 5 Line 48 through Column 6 Line 54).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature for accessing data instances in different computing environments as taught by Silberberg et al. with the system taught by White et al. as applied to claim 1 above so that, in the combined system, at least one of said encapsulated references is a reference to an encapsulated data instance in another computing environment. One would have been motivated to do so in order to access "information from a plurality of diverse data sources" (Silberberg et al., Column 4 Line 7-9).

Claim 49 and 61 are rejected on the same basis as claim 17.

14. Claims 94-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Suver (U.S. Patent Number 6016497).

Referring claim 94, White does not explicitly teach that the limitation:

"wherein each of said items may encapsulate embedded elements."

Suver teaches the limitation: "wherein each of said items may encapsulate embedded elements" (Column 10 Line 9-27). Suver teaches a method and system for storing and accessing embedded information in object-relational databases wherein data instances encapsulate embedded elements (Column 10 Line 9-27).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of embedding elements in object-relational databases as taught by Suver with the system and method of claim 85 as taught by White et al. so that, in the combined system and method, items would encapsulate embedded elements. One would have been motivated to do so in order to "allow for storing and access of embedded complex information in both the relational data modeling and object-oriented data modeling" (Suver, Column 2 Line 44-48).

Referring to claim 95, Suver teaches the limitation:

"wherein said embedded elements are references to other items" (Column 10 Line 9-27).

Referring to claim 96, Suver teaches the limitation:

"wherein said data instances my contain data of any type" (Column 10 Line 9-27).

Allowable Subject Matter

15. Claims 25-26, 29-30 35, 37, 41,43, 45, 46 and 91 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims, assuming correction of the claim objections and claim rejections under 35 U.S.C. 112 above.

The following is a statement of reasons for the indication of allowable subject matter. Referring to claims 25, White et al. in view of Kroenke et al. is directed to the system and method of claim 23, comprising:

a. finding specific unknown encapsulated data instances from a selection criteria of known encapsulated data instances by accessing said known encapsulated data instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

b. accessing references encapsulated with said known encapsulated data instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

c. using Boolean operations to compare said accessed encapsulated references to find references to said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44); and

d. retrieving said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

However, White et al. in view of Kroenke et al. fails to teach what claim 25 of the claimed invention recites that, in the said system and method of claim 23, said encapsulated references are `m` dimensional logical indexes each of which uniquely identifies and encodes the location of said associated encapsulated data instances; and further comprising filtering said encapsulated references by Boolean operations on at least one of said `m` dimensional logical indexes.

Therefore, claim 25 is allowable if written in an independent form.

Referring to claims 26, White et al. in view of Kroenke et al. is directed to the system and method of claim 24, wherein:

a. said encapsulated references are embodied as logical indexes in a plurality of dimensions (White et al., "pointers or keys", Column 7 Line 5-11) ;

b. each of said dimensions corresponds to a type of association (White et al., Column 5 Line 3-25 and Column 6 Line 22-43); and

c. said accessing further comprises accessing said encapsulated references from said dimensions specified in said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

However, White et al. in view of Kroenke et al. fails to teach what claim 26 of the claimed invention recites that, in the said system and method of claim 24, said encapsulated references are `m` dimensional logical indexes each of which uniquely identifies and encodes the location of said associated encapsulated data instances; and further comprising filtering said encapsulated references by Boolean operations on at least one of said `m` dimensional logical indexes.

Therefore, claim 26 is allowable if written in an independent form.

Referring to claim 35, White et al. in view of Kroenke et al. is directed to the system of claim 34 wherein encapsulated references of different said encapsulated data instances are compared such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results. However, White et al. in view of Kroenke et al. fails to teach what claim 35 of the claimed invention recites that, in the said system and method of claim 34, said encapsulated references of different said encapsulated data instances are stored in an order based on value and are compared such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results.

Therefore, claim 35 is allowable if written in an independent form.

Referring to claim 37, White et al. in view of Kroenke et al. is directed to the system of claim 33 wherein encapsulated references of different said encapsulated data instances are used to derive desired results. However, White et al. in view of Kroenke et al. fails to teach what claim 37 of the claimed invention recites that, in the said system and method of claim 33, each of said at least one dimensions has a plurality of said encapsulated references; and said encapsulated references of different of said encapsulated data instances are stored in an order based on value and are compared for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results.

Therefore, claim 37 is allowable if written in an independent form.

Referring to claim 41, White et al. in view of Bielak et al. as applied to claim 40 teaches that the system comprises encapsulated data instances representing ASCII characters, wherein common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters.

However, White et al. in view of Bielak et al. as applied to claim 40 does not teach that said encapsulated references with a given ASCII character data instance are references to other encapsulated data instances containing said ASCII characters based on position of said ASCII characters in the sequence of occurrence of said ASCII characters in said encapsulated data instances.

Therefore claim 41 is allowable if written in an independent form.

Referring to claim 43, White et al. in view of Bielak et al. as applied to claim 42 teaches that the system comprises encapsulated data instances representing Unicode characters, wherein common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding Unicode characters also contains encapsulated

references to said encapsulated data instances representing corresponding Unicode characters.

However, White et al. in view of Bielak et al. as applied to claim 42 does not teach that said encapsulated references with a given Unicode character data instance are references to other encapsulated data instances containing said Unicode characters based on position of said Unicode characters in the sequence of occurrence of said Unicode characters in said encapsulated data instances.

Therefore claim 43 is allowable if written in an independent form.

Referring to claim 45, White et al. in view of Bielak et al. as applied to claim 44 teaches that the system comprises encapsulated data instances representing token set of any data type, wherein common fundamental data structures containing said encapsulated data instances representing token set of any data type also contain encapsulated references to encapsulated data instances containing said corresponding token set of any data type, and said common fundamental data structures containing said encapsulated data instances containing said corresponding token set of any data type also contains encapsulated references to said encapsulated data instances representing corresponding token set of any data type.

However, White et al. in view of Bielak et al. as applied to claim 44 does not teach that said encapsulated references with a given token set of any data type data instance are references to other encapsulated data instances containing said token set of any data type based on position of said token set of any data type in the sequence of occurrence of said token set of any data type in said encapsulated data instances.

Therefore claim 45 is allowable if written in an independent form.

Referring to claim 91, White et al. in view of Kroenke et al. as applied to claim 90 fails to teach that, in the system of claim 90, "m" is 4 and "n" is 30. Therefore claim 90 is allowable if written in an independent form.

Contact Information

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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